## IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A method for identifying pathologic change in medical image data, comprising:

obtaining a temporal subtraction image from two images taken at different times;

extracting at least one feature from the subtraction image;

determining whether a region of interest in the subtraction image includes an abnormality based on the extracted at least one feature; and

superimposing a computer-aided diagnostic symbol indicating a location of a region representing said pathologic change on at least one of the temporal subtraction image and the two images.

Claim 2 (Original): The method of Claim 1, wherein the extracting step comprises:

constructing a gray-level histogram from the temporal subtraction image;

constructing a binary image based on the gray-level histogram; and

extracting at least one feature from the gray-level histogram.

Claim 3 (Original): The method of Claim 1, wherein the determining step comprises:

determining a registration accuracy based on the gray-level histogram; and

distinguishing a region of pathologic change from regions with a misregistration artifact.

Claim 4 (Original): The method of Claim 1, wherein said extracting step comprises:

identifying an organ mask region; and

spatially smoothing said organ mask region.

Claim 5 (Original): The method of Claim 1, wherein said extracting step comprises:

producing a histogram of pixels in the subtraction image;

determining a threshold level based on the produced histogram;

thresholding the subtraction image using said threshold and identifying ON and OFF

pixels based on the thresholding;

identifying a contiguous region of ON pixels; and

extracting at least one of geometric or gray-level feature from said contiguous region.


Claim 6 (Original): The method of Claim 1, wherein said obtaining step comprises:

obtaining a first dual-energy image, a first standard image, and one of a first bone

image and a first soft tissue image from the first dual-energy image at a first point in time;

obtaining a second dual-energy image, a second standard image, and one of a second

bone image and a second soft tissue image from the second dual-energy image at a second

point in time;

using the first and second standard images to obtain shift vectors to obtain image

registration;

performing temporal subtraction, using said shift vectors, on one of the first and

second bone images or one of the first and second soft tissue images to produce a temporally

subtracted image; and

outputting the temporally subtracted image


Claim 7 (Original): The method of Claim 6, wherein said outputting step comprises:

outputting the temporally subtracted image to a display and displaying the temporally

subtracted image.

Claim 8 (Original): The method of Claim 6, wherein said outputting step comprises:

outputting the temporally subtracted image to a processor; and

performing computer aided diagnosis on the subtracted image.

Claim 9 (Original): The method of Claim 8, wherein said step of performing computer aided diagnosis comprises:

identifying pathologic change in the temporally subtracted image.

Claim 10 (Original): The method of Claim 9, wherein said identifying step comprises:

obtaining a temporal subtraction image from two images taken at different times;

constructing a gray-level histogram from the temporal subtraction image;

constructing a binary image based on the gray-level histogram;

determining a registration accuracy of the gray-level histogram; and

distinguishing a region of pathologic change from regions with a misregistration artifact.

Claim 11 (Original): The method of Claim 8, further comprising:

superimposing a computer-aided diagnostic symbol on at least a selected one of the temporal subtraction image, the first dual-energy image, the first standard image, the first bone image, the first soft tissue image, the second dual-energy image, the second standard image, the second bone image, and the second soft tissue image; and

displaying the selected one of the temporal subtraction image, the first dual-energy image, the first standard image, the first bone image, the first soft tissue image, the second

dual-energy image, the second standard image, the second bone image, and the second soft

tissue image with the computer-aided diagnostic symbol superimposed thereon.

Claim 12 (Canceled).

Claim 13 (Previously Presented): A tangible computer program product hosting

instructions that enable a computing device to perform any one of the steps of Claims 1-11.

Claim 14 (Previously Presented): A method for identifying pathologic change in

medical image data, comprising:

obtaining a first dual-energy image, a first standard image, and one of a first bone

image and a first soft tissue image from the first dual-energy image at a first point in time;

obtaining a second dual-energy image, a second standard image, and one of a second

bone image and a second soft tissue image from the second dual-energy image at a second

point in time;

using the first and second standard images to obtain shift vectors to obtain image

registration;

performing temporal subtraction, using said shift vectors, on one of the first and

second bone images or one of the first and second soft tissue images to produce a temporally

subtracted image; and

outputting the temporally subtracted image.

Claim 15 (Original): The method of Claim 14, wherein said outputting step

comprises:

outputting the temporally subtracted image to a display and displaying the temporally

subtracted image.

Claim 16 (Original): The method of Claim 14, wherein said outputting step

comprises:

outputting the temporally subtracted image to a processor; and

performing computer aided diagnosis on the subtracted image.

Claim 17 (Original): The method of Claim 16, wherein said step of performing

computer aided diagnosis comprises:

identifying pathologic change in the temporally subtracted image.

Claim 18 (Original): The method of Claim 16, wherein said identifying step

comprises:

obtaining a temporal subtraction image from two images taken at different times;

constructing a gray-level histogram from the temporal subtraction image;

constructing a binary image based on the gray-level histogram;

determining a registration accuracy of the gray-level histogram; and

distinguishing a region of pathologic change from regions with a misregistration

artifact.

Claim 19 (Original): The method of Claim 16, further comprising:

superimposing a computer-aided diagnostic symbol on at least a selected one of the

temporal subtraction image, the first dual-energy image, the first standard image, the first

bone image, the first soft tissue image, the second dual-energy image, the second standard image, the second bone image, and the second soft tissue image; and

displaying the selected one of the temporal subtraction image, the first dual-energy image, the first standard image, the first bone image, the first soft tissue image, the second dual-energy image, the second standard image, the second bone image, and the second soft tissue image with the computer-aided diagnostic symbol superimposed thereon.

Claim 20 (Canceled).

Claim 21 (Previously Presented): A tangible computer program product hosting instructions that enable a computing device to perform any one of the steps of Claims 14-19.

Claim 22 (Currently Amended): An apparatus for identifying pathologic change in medical image data, comprising:

means for obtaining a temporal subtraction image from two images taken at different times;

means for extracting at least one feature from the subtraction image;

means for determining whether a region of interest in the subtraction image includes an abnormality based on the extracted at least one feature; and

means for superimposing a computer-aided diagnostic symbol indicating a location of a region representing said pathologic change on at least one of the temporal subtraction image and the two images.

Claim 23 (Previously Presented): The apparatus of Claim 22, wherein the means for extracting comprises:

means for constructing a gray-level histogram from the temporal subtraction image;

means for constructing a binary image based on the gray-level histogram; and

means for extracting at least one feature from the gray-level histogram.

Claim 24 (Previously Presented): The apparatus of Claim 22, wherein the means for determining comprises:

means for determining a registration accuracy based on the gray-level histogram; and

means for distinguishing a region of pathologic change from regions with a misregistration artifact.

Claim 25 (Previously Presented): The apparatus of Claim 22, wherein said means for extracting comprises:

means for identifying an organ mask region; and

means for spatially smoothing said organ mask region.

Claim 26 (Previously Presented): The apparatus of Claim 22, wherein said means for extracting comprises:

means for producing a histogram of pixels in the subtraction image;

means for determining a threshold level based on the produced histogram;

means for thresholding the subtraction image using said threshold and identifying ON and OFF pixels based on the threshold;

means for identifying a contiguous region of ON pixels; and

means for extracting at least one of geometric or gray-level feature from said contiguous region.

Claim 27 (Previously Presented): The apparatus of Claim 22, wherein said means for obtaining comprises:

means for obtaining a first dual-energy image, a first standard image, and one of a first bone image and a first soft tissue image from the first dual-energy image at a first point in time;

means for obtaining a second dual-energy image, a second standard image, and one of a second bone image and a second soft tissue image from the second dual-energy image at a second point in time;

means for using the first and second standard images to obtain shift vectors to obtain image registration;

means for performing temporal subtraction, using said shift vectors, on one of the first and second bone images or one of the first and second soft tissue images to produce a temporally subtracted image; and

means for outputting the temporally subtracted image.

Claim 28 (Previously Presented): The apparatus of Claim 27, wherein said means for outputting comprises:

means for outputting the temporally subtracted image to a display and displaying the temporally subtracted image.

Claim 29 (Previously Presented): The apparatus of Claim 27, wherein said means for outputting comprises:

means for outputting the temporally subtracted image to a processor; and

means for performing computer aided diagnosis on the subtracted image.

Claim 30 (Previously Presented): The apparatus of Claim 29, wherein said means for performing computer aided diagnosis comprises:

means for identifying pathologic change in the temporally subtracted image.

Claim 31 (Previously Presented): The apparatus of Claim 30, wherein said means for identifying comprises:

means for obtaining a temporal subtraction image from two images taken at different times;

means for constructing a gray-level histogram from the temporal subtraction image;

means for constructing a binary image based on the gray-level histogram;

determining a registration accuracy of the gray-level histogram; and

means for distinguishing a region of pathologic change from regions with a misregistration artifact.

Claim 32 (Previously Presented): The apparatus of Claim 29, further comprising:

means for superimposing a computer-aided diagnostic symbol on at least a selected one of the temporal subtraction image, the first dual-energy image, the first standard image, the first bone image, the first soft tissue image, the second dual-energy image, the second standard image, the second bone image, and the second soft tissue image; and

means for displaying the selected one of the temporal subtraction image, the first dual-energy image, the first standard image, the first bone image, the first soft tissue image, the second dual-energy image, the second standard image, the second bone image, and the second soft tissue image with the computer-aided diagnostic symbol superimposed thereon.

Claim 33 (Previously Presented): An apparatus for identifying pathologic change in medical image data, comprising:

means for obtaining a first dual-energy image, a first standard image, and one of a first bone image and a first soft tissue image from the first dual-energy image at a first point in time;

means for obtaining a second dual-energy image, a second standard image, and one of a second bone image and a second soft tissue image from the second dual-energy image at a second point in time;

means for using the first and second standard images to obtain shift vectors to obtain image registration;

means for performing temporal subtraction, using said shift vectors, on one of the first and second bone images or one of the first and second soft tissue images to produce a temporally subtracted image; and

means for outputting the temporally subtracted image.

Claim 34 (Previously Presented): The apparatus of Claim 33, wherein said means for outputting comprises:

means for outputting the temporally subtracted image to a display and displaying the temporally subtracted image.

Claim 35 (Previously Presented): The apparatus of Claim 33, wherein said means for outputting comprises:

means for outputting the temporally subtracted image to a processor; and

means for performing computer aided diagnosis on the subtracted image.

Claim 36 (Previously Presented): The apparatus of Claim 35, wherein said means for performing computer aided diagnosis comprises:

means for identifying pathologic change in the temporally subtracted image.

Claim 37 (Previously Presented): The apparatus of Claim 35, wherein said means for identifying comprises:

means for obtaining a temporal subtraction image from two images taken at different times;

means for constructing a gray-level histogram from the temporal subtraction image;

means for constructing a binary image based on the gray-level histogram;

means for determining a registration accuracy of the gray-level histogram; and

means for distinguishing a region of pathologic change from regions with a misregistration artifact.

Claim 38 (Previously Presented): The apparatus of Claim 35, further comprising:

means for superimposing a computer-aided diagnostic symbol on at least a selected one of the temporal subtraction image, the first dual-energy image, the first standard image, the first bone image, the first soft tissue image, the second dual-energy image, the second standard image, the second bone image, and the second soft tissue image; and

means for displaying the selected one of the temporal subtraction image, the first dual-energy image, the first standard image, the first bone image, the first soft tissue image, the second dual-energy image, the second standard image, the second bone image, and the second soft tissue image with the computer-aided diagnostic symbol superimposed thereon.